UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/618,645	07/18/2000	Grant R. Griffin	462-99-004	1830

128 7590 08/12/2004

HONEYWELL INTERNATIONAL INC.
101 COLUMBIA ROAD
P O BOX 2245
MORRISTOWN, NJ 07962-2245

EXAMINER	
CHANG, EDITH M	
ART UNIT	**PAPER NUMBER**
2637	

DATE MAILED: 08/12/2004

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/618,645	Applicant(s) GRIFFIN, GRANT R.	
	Examiner Edith M Chang	Art Unit 2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *May 24 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 July 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1, 2, 15, 16, 29, 41 and 42; 30-32, 38 and 39 have been considered but are moot in view of the new ground(s) of rejection.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims.

Therefore, in claim 1 line 8: the "a demodulator's symbol sampling timing", and line 13: the "a demodulating device" must be shown or the feature(s) canceled from the claim(s).

In claim 14: "the demodulator portion of a VHF Digital Link Mode 2 receiver" must be shown or the feature(s) canceled from the claim(s).

In claim 28: "a VHF Digital Link Mode 2 radio receiver" must be shown or the feature(s) canceled from the claim(s).

No new matter should be entered. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief

description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 1-30, 38-39, and 40 are objected to because of the following informalities:

Claim 1, line 3: "a receiver" is suggested changing to "a receiving circuit";

Lines 4- 5: "said receiver" is suggested changing to "said receiving circuit";

Lines 8 & 11: the word "would" is suggested changing to "to".

Claims 9 & 23, the term "the group consisting of +- ¼ and ½" is suggested changing to "the group consisting ¼ and ½".

Claim 10, the term "A system for demodulating" is suggested changing to "A demodulator for demodulating".

Claim 11, depends on the apparatus claim 10 is an apparatus claim, however the claim 11 comprises method steps as a method claim. Change the steps in this claim to the elements in the apparatus of performing the steps: (i) multiplier for multiplying and (ii) adder/summer for summing.

Claim 13 & 26, the term "0 samples" is suggested changing to "0 sample".

Claim 15, lines 8 & 11: the word "would" is suggested changing to "to".

Claims 24 & 38, "interpolation filter that implements" is suggested changing to "interpolating using an interpolation filter to implement".

Claims 25 & 39, "the interpolation filter" is suggested changing to "the interpolating".

Claims 2-8, 12, 14, 16-22, 27-30, and 40 are directly or indirectly depend on the independent objected claims.

Appropriate corrections are required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-14, 15-30, 31-39, 40, 41 and 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, line 6, the "correlation values" is not clear what are the values and which element provides the values wherein *a correlation value* is produced in line 5;

line 9, the term "the required fractional sample delay" and line 11-12 the term "the demodulation synchronization timing" lack antecedence;

lines 8 & 11: the word "would" renders the claim indefinite, the operations should be definite.

line 11, the term "a fractional sample delay" is another fractional sample delay differed from the "a fractional sample delay" determined by the determining device in line 7 or is the fractional sample delay implemented in an implementing device in line 10.

Claim 2, the term "a fractional sample delay" is not clear whether it is another fractional sample delay different from the "a fractional sample delay" in claim 1 line 7 and line 11; the word "would" renders the claim indefinite, the algorithm should be definite; the term "the demodulation synchronization timing" lacks antecedence;

Claim 3, line 3: the term "a fractional sample delay" is not clear whether it is another fractional sample delay different from the "a fractional sample delay" in claim 1 line 7 & line 11, and the a fractional sample delay" in claim 2; the term "the demodulation synchronization timing" lack antecedence; the word "would" renders the claim indefinite, the operation should be definite.

Claim 6 –7, 20-21, & 36-37 the terms "the required fractional sample delay" and "the selected correlation values" lack antecedence.

Claims 12 & 27, "the coefficients of 0.5 and 0.5" is not clear for using more than one coefficients for equal value 0.5; the term "a fractional sample delay" should be "the fractional sample delay".

Claim 14, "the demodulator portion of a VHF Digital Link Mode 2 receiver" lacks antecedence.

Claim 15, line 6, the "correlation values" is not clear what are the values and which element provides the values wherein *a correlation value* is produced in line 5;

lines 8-9, the term "the required fractional sample delay"; line 11-12 the term "the demodulation synchronization timing" lack antecedence;

lines 8 & 11: the word "would" renders the claim indefinite, the steps should be definite;

line 11: the term "a fractional sample delay" is another fractional sample delay differed from the "a fractional sample delay" determined in line 7 or is the fractional sample delay implemented in line 10.

Claims 16 & 32, the term "a fractional sample delay" is not clear whether it is another fractional sample delay different from the "a fractional sample delay" in claim 15 line 7 and line 11; the word "would" renders the claim indefinite, the algorithm should be definite; the term "the demodulation synchronization timing" lacks antecedence;

Claims 17 & 33, line 3: the term "a fractional sample delay" is not clear whether it is another fractional sample delay different from the "a fractional sample delay" in claim 15/31 line 7 and line 11, and the a fractional sample delay" in claim 16/32; the term "the demodulation synchronization timing" lacks antecedence; the word "would" renders the claim indefinite, the operation should be definite.

Claim 25, the term "input samples" lacks antecedence.

Claim 31, "said code for executing the steps comprising: receiving..." wherein the said code comprises computer codes not the steps.

line 6, the "correlation values" is not clear what are the values and which element provides the values wherein *a correlation value* is produced in line 5; lines 8-9, the term "the required fractional sample delay" and lines 11-12 the term "the demodulation synchronization timing" lack antecedence; the word "would" in lines 8 and 11 renders the claim indefinite.

line 11: the term "a fractional sample delay" is another fractional sample delay differed from the "a fractional sample delay" determined in line 7 or is the fractional sample delay implemented in line 10.

Claim 40, the term "computer executable code" lacks antecedence in this claim or its parent claim 30 wherein a method cited in the claim 30.

Claims 41 & 42, line 6, the term "correlation values" is not clear what are the values and which element provides the values wherein *a correlation value* is produced in line 5; "a demodulator's symbol sampling timing" is not clearly indicating its provider in the claim; the term "the selected correlation values" lacks antecedence.

Wherein claims 4-5, 8-11, 13, 18-19, 22-24, 26, 28-30, 34-35, and 38-39 are directly or indirectly dependent on independent rejected claims.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-2, 10, 15-16, 24, 29, and 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Citta et al. (US 6304619 B1) in view of Krasner (US 6208291 B1).

Regarding **claims 1 & 15**, Citta et al. discloses a demodulator and its methods for demodulating digital data (Figure 5), comprising: *a receiver* for receiving a digital data signal (42-44 Figure 5 is the receiver); *a correlator* (158 Figure 10) to correlate the digital signal

received from the receiver with a reference training sequence (column 2 lines 21-31, column 3 lines 29-31 wherein the pilot up and down chirps contained in the received signal is a reference training sequence) to produce a correlation value; *a verification unit* (166 Figure 10) to select correlation values (Figure 8 is an example of correlation results/values); *a determining device* to determine if a fractional sample delay added to a demodulator's symbol sampling timing would improve synchronization timing (60 Figure 9/Figure 10 & column 9 lines 20-45 wherein Figure 10 is the determining device, Figure 7 66-68-62/64 & column 11 line 60-column 12 line 10 determine improvement of synchronization timing); *an implementing device* (Figure 14 Fraction) implementing the fractional sample delay if said determining device determines that a fractional sample delay would improve the demodulation synchronization timing; and a demodulating device for demodulating the digital data signal (50 Figure 5, column 4 lines 27-30).

However Citta et al. does not explicitly specify a threshold value for select correlation values.

Krasner teaches a correlator system and method having a threshold value for select correlation values (326 FIG.3A, column 6 lines 55-67, column 10 lines 54-62 wherein the correlation peak is detect via threshold with an algorithm provided '291). Through Kransner's teaching, the correlator system and method is prepared for acquiring and tracking the received signal for synchronizing the received signal.

Therfore, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the parallel correlators taught by Krasner implemented in Citta et al.'s Detector 60 for the purpose of providing effective and efficient implementation of correlator to speed up the acquisition process (column 2 lines 1-15 '291)

Regarding **claims 2 & 16**, the combined/modified demodulator and its methods teach the determining device comprises an algorithm that determines if a fractional sample delay would improve the demodulation synchronization timing (326 FIG.3A, column 6 lines 55-67, column 10 lines 54-62 wherein the correlation peak is detect via threshold with an algorithm provided '291).

Regarding **claims 10 & 24**, Citta et al. discloses the interpolation filter (column 12 lines 4-6).

Regarding **claim 29**, Citta et al. discloses a digital circuit provided for implementing the method (Figure 5, Figure 7-Figure 14).

Regarding **claims 41 & 42**, Citta et al. discloses a demodulator and its method for demodulating digital data (Figure 5) comprising: *receiving means* for receiving a digital data signal (42-44 Figure 5 is the receiver) of receiving a digital data signal (42 Figure 5); *correlating means* (158 Figure 10) to correlate the digital signal received from the receiver with a reference training sequence (column 2 lines 21-31, column 3 lines 29-31 wherein the pilot up and down chirps contained in the received signal is a reference training sequence) to produce a correlation value; *verification means* (166 Figure 10) to select correlation values (Figure 8 is an example of correlation results/values); *determining means* to determine if an amount of a fractional sample delay added to a demodulator's symbol sampling timing based on the selected correlation values (60 Figure 9/Figure 10 & column 9 lines 20-45 wherein Figure 10 is the determining device, Figure 7 66-68-62/64 & column 11 line 60-column 12 line 10 wherein the determination is based on the selected correlation values form the Detector that the timing error provides to the 64 Timing and 68 Delay); *implementing means* (Figure 14 Fraction) implementing the fractional

sample delay if said determining device determines that a fractional sample delay would improve the demodulation synchronization timing; and demodulating means for demodulating the digital data signal (50 Figure 5, column 4 lines 27-30).

However Citta et al. does not explicitly specify a threshold value for select correlation values.

Krasner teaches a correlator system and method having a threshold value for select correlation values (326 FIG.3A, column 6 lines 55-67, column 10 lines 54-62 wherein the correlation peak is detect via threshold with an algorithm provided '291). Through Kransner's teaching, the correlator system and method is prepared to acquiring and tracking the received signal for synchronizing the received signal.

Therfore, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the parallel correlators taught by Krasner implemented in Citta et al.'s Detector 60 for the purpose of providing effective and efficient implementation of correlator to speed up the acquisition process (column 2 lines 1-15 '291)

8. Claims 3-7, 11, 17-21, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Citta et al. (US 6304619 B1) in view of Krasner (US 6208291 B1) as applied to the claims 1, 10, 15, and 24 above, further in view of Beauvais et al. (US 4025775).

Regarding **claims 3 & 17**, Citta et al. does not explicitly specify using a correlation curve. However, Beauvais et al. teaches exploiting the geometry of a correlation curve to determine a fractional sample delay to improve the demodulation synchronization timing (70, 80 FIG.3, column 6 lines 16-25, FIG.5, FIG.8, column 8 lines 10-50).

Through Beauvais et al.'s teaching, the correlator is capable of performing a correlation with an improved degree sensitivity using the correlation curve technique (column 1 lines 42-45) for synchronizing input signals (Abstract).

Therefore, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the Beauvais et al.'s teaching in Citta et al.'s correlation position detector for the purpose of achieving high accurate and sensitive corrrelator (column 1 lines 40-55 '775).

Regarding **claims 4 & 18**, Citta et al. does not explicitly teach comparing the first and last correlation values of the correlation curve that exceed a threshold value. However, Beauvais et al. teaches comparing the first and last correlation values of the correlation curve that exceed a threshold value (60, 70 FIG.3, FIG.7).

Through Beauvais et al.'s teaching, the correlator is capable of performing a correlation with an improved degree sensitivity using the correlation curve technique (column 1 lines 42-45) for synchronizing input signals (Abstract).

Therefore, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the Beauvais et al.'s teaching in Citta et al.'s correlation position detector for the purpose of achieving high accurate and sensitive corrrelator (column 1 lines 40-55 '775).

Regarding **claims 5 & 19**, Citta et al. does not explicitly teach counting correlation values that exceed a threshold value. However, Beauvais et al. teaches counting correlation values that exceed a threshold value (65-71-73 FIG.3, 715 FIG.7, column 8 lines 20-50, column 10 lines 1-5, where the correlation values stored).

Through Beauvais et al.'s teaching, the correlator is capable of performing a correlation with an improved degree sensitivity using the correlation curve technique (column 1 lines 42-45) for synchronizing input signals (Abstract).

Therefore, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the Beauvais et al.'s teaching in Citta et al.'s correlation position detector for the purpose of achieving high accurate and sensitive corrrelator (column 1 lines 40-55 '775).

Regarding **claims 6-7 & 20-21**, Citta et al. discloses determining an amount of fractional sample delay necessary to improve the demodulation synchronization timing (column 11 lines 20-50, column 11 line 67-column 12 line 10).

Regarding **claims 11 & 25**, Citta et al. does not specify the interpolation filter steps. However, further Beauvais et al. teaches the steps of (i) multiplying first and second samples of each pair of input samples by respective coefficients to obtain two fractional values (FIG.1, 60, 64-65 FIG.3, column 12 lines 18-2542 where the correlator provides the coefficients, column 4 lines 55-68), and (ii) summing the fractional values. (FIG.2, 19 FIG.3, FIG.7).

Through Beauvais et al.'s teaching, the correlator is capable of performing a correlation with an improved degree sensitivity using the correlation curve technique (column 1 lines 42-45) for synchronizing input signals (Abstract).

Therefore, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the Beauvais et al.'s teaching in Citta et al.'s correlation position detector for the purpose of achieving high accurate and sensitive corrrelator (column 1 lines 40-55 '775).

9. Claims 8-9, 22-23, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Citta et al. (US 6304619 B1) in view of Krasner (US 6208291 B1) as applied to the claims 1 and 15 above, further in view of Knutson et al. (US 5943369).

Regarding **claims 8 & 22**, Citta et al. does not teach the delay range. However, further Knutson et al. teaches the fractional sample delay is in the range of -0.5 to 0.5 (NUMBERICALLY CONROLLED DELAY FIG.2, column 2 lines 30-40, column 4 lines 50-60).

Through Knutsonet et al.'s teaching, the receiver having variable symbol rate timing recovery is prepared to properly timing the received samples.

Therefore, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the Knutsonet et al.'s NUMBERICALLY CONROLLED DELAY in Citta et al.'s Sync unit (46 Figure 5/Figure 7) for the purpose to have an efficient synchronous design with the chosen range (column 4 lines 55-62 '369).

Regarding **claims 9 & 23**, Citta et al. does not specify the delay range. However, Knutson et al. teaches the fractional sample delay is in the range of -0.5 to 0.5 (NUMBERICALLY CONROLLED DELAY FIG.2, column 2 lines 30-40, column 4 lines 50-60) which includes the group consisting of ±1/4 and ±1/2. Refer to the rationale of claims 8 and 22.

Regarding **claim 30**, except explicitly specify a processor, Citta et al. discloses all subject matter claimed (refer to the rejection of claim 1).

However Knutson et al. teaches a digital signal processing system to implementing the method (column 1 lines 5-10). Through Knutson et al.'s teaching, the receiver having a process is prepared to properly timing the received digital samples.

Therefore, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the DSP taught by Knutson to implement the Citta et al.'s method for the purpose of processing digital data to provide a timing recovery in the digital implementation (column 1 lines 1-25; FIG.1 & column 4 lines 40-46 '369).

10. Claims 12-13, and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Citta et al. (US 6304619 B1) in view of Knutson et al. (US 5943369) and Beauvais et al. (US 4025775), as applied to claims 11 and 25 above, and further in view of Broekhoven et al. (US 4894842).

Regarding **claims 12-13, & 26-27**, The combined/modified modulator/its method Citta et al. does not specify the coefficients. However, further Broekhoven et al. teaches the coefficients of 0.5 to implement a fractional sample delay of half sample or 1 and 0 to implement a fractional sample delay of 0 sample (FIG.5).

Through Broekhoven et al.'s teaching, the receiving apparatus achieve advantage the code synchronization (column 3 lines 22-26, lines 47-52). Therefore, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the Broekhoven et al.'s teaching to detail the interpolation of the correlation implemented in Citta et al's detector for the purpose of providing a simplified receiver for a spread spectrum RF signal (column 2 lines 5-15 '842).

11. Claims 14 & 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Citta et al. (US 6304619 B1) in view of Krasner (US 6208291 B1) as applied to claims 1 and 15 above, and further in view of Nishida et al. (US 6064939).

Regarding **claims 14 & 28**, Citta et al. does not teach the VDL Mode 2 receiver. However, Nishida et al. teaches the VDL receiver in the ATN aircraft data detection device (FIG.4, column 5 line 50-column 6 line5) in the aircraft transceiver.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the demodulator of Citta et al. comprising the demodulator portion of a VDL Mode 2 receiver taught by Nishida et al for the purpose to handle/synchronize the burst of the aircraft system signal and get accurate aircraft signals to have a save surveillance system (column 2 lines 24-30).

12. Claim s 31-32, 38, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Citta et al. (US 6304619 B1) in view of Knutson et al. (US 5943369) and Broekhoven et al. (US 4894842).

Regarding **claim 31**, Citta et al. discloses a demodulator and its methods for demodulating digital data (Figure 5), comprising: *a receiver* for receiving a digital data signal (42-44 Figure 5 is the receiver); *a correlator* (158 Figure 10) to correlate the digital signal received from the receiver with a reference training sequence (column 2 lines 21-31, column 3 lines 29-31 wherein the pilot up and down chirps contained in the received signal is a reference training sequence) to produce a correlation value; *a verification unit* (166 Figure 10) to select correlation values (Figure 8 is an example of correlation results/values); *a determining device* to

determine if a fractional sample delay added to a demodulator's symbol sampling timing would improve synchronization timing (60 Figure 9/Figure 10 & column 9 lines 20-45 wherein Figure 10 is the determining device, Figure 7 66-68-62/64 & column 11 line 60-column 12 line 10 determine improvement of synchronization timing); *an implementing device* (Figure 14 Fraction) implementing the fractional sample delay if said determining device determines that a fractional sample delay would improve the demodulation synchronization timing; and a demodulating device for demodulating the digital data signal (50 Figure 5, column 4 lines 27-30).

However, Citta et al. does not teach I) the computer executable code for implementing and II) a threshold value for select correlation values.

With respect to item I), Krasner teaches a correlator system and method having a threshold value for select correlation values (326 FIG.3A, column 6 lines 55-67, column 10 lines 54-62 wherein the correlation peak is detect via threshold with an algorithm provided '291). Through Kransner's teaching, the correlator system and method is prepared to acquiring and tracking the received signal for synchronizing the received signal.

Therfore, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the parallel correlators taught by Krasner implemented in Citta et al.'s Detector 60 for the purpose of providing effective and efficient implementation of correlator to speed up the acquisition process (column 2 lines 1-15 '291)

With respect to item II), further Broekhoven et al. teaches a computer readable medium provided for storing the computer executable code (42 FIG.1, column 4 lines 15-25). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the medium taught by Broekhoven et al. in Citta et al's method for the purpose to store the program

where the DSP equipped to handling, processing and performing the sampling direct sequence receiver efficiently (column 2 lines 5-15). The rejections of other limitations in the claims refer to the rationale of the rejections of claims 2-7, and 30 respectively.

Regarding **claims 32, 38 & 40**, Citta et al. does not specify the computer executable code for implementing. However, Broekhoven et al. teaches a computer readable medium provided for storing the computer executable code (42 FIG.1, column 4 lines 15-25). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the medium taught by Broekhoven et al. in Citta et al's method for the purpose to store the program where the DSP equipped to handling, processing and performing the sampling direct sequence receiver efficiently (column 2 lines 5-15).

The rejections of other limitations in the claims 32 and 38 refer to the rationale of the rejections of claims 2 and 10 respectively.

13. Claims 33-37, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Citta et al. (US 6304619 B1) in view of Krasner (US 6208291 B1) and Broekhoven et al. (US 4894842) as applied to claim 31 above, and further in view of Beauvais et al. (US 4025775).

Regarding **clam 33-37 & 39**, Citta et al. discloses all subject matter claimed (refer to the rejection of claim 1). However, Citta et al. does not except explicitly specify the computer executable code for implementing the method.

Broekhoven et al. teaches a computer readable medium provided for storing the computer executable code (42 FIG.1, column 4 lines 15-25). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the medium taught by Broekhoven et

al. in Citta et al's method for the purpose to store the program where the DSP equipped to handling, processing and performing the sampling direct sequence receiver efficiently (column 2 lines 5-15). The rejections of other limitations in the claims refer to the rationale of the rejections of claims 3-7 and 11 respectively.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Chang whose telephone number is 571-272-2988. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayanti Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
August 6, 2004

YOUNG T. TSE
PRIMARY EXAMINER